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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/702,130

11/05/2003

Hiroshi Kurachi

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10/22/2007

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EXAMINER

OLSEN, KAJ K

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

10/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/702,130

Applicant(s)

KURACHI ET AL.

Examiner

Kaj K. Olsen

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8 and 13-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Müller et al (USP 4,282,080).
3. Müller discloses a gas sensor comprising a gas detecting section and a heater section secured to the gas sensor. Müller further discloses that the heater section including a heating element 52 and a support (any of 50, 53 or 43), which supports the heating element. See fig. 5 and col. 5, l. 41 through col. 6, l. 46. Müller further discloses a number of features that would read on the defined “opening section” of the claims. First, cover 50 leaves the heater leads (54, 54/1) exposed to the external environment at the rear edge of the sensor (see fig. 5) and this would read on the defined opening section. Second, the gas tight cover 50 contains free space 51 that may be left exposed to ambient air. See col. 6, ll. 39-46. This would also read on the defined opening section of the claims. Third, the heater is placed on a porous layer 53 and a porous layer would inherently possess pores that read on the defined opening section. Finally, the heater can also contain a gas pervious protective layer on the other side of the heater from the porous layer 53. Again, because a porous layer contains pores, it reads on the defined opening

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section. All these various opening sections would allow any pressure generated at the heating element to be reduced.

4. With respect to applicant's amendment to claim 1 that no part of the heating element is supported by the gas detecting section, this doesn't appear to read free of the teaching of Müller giving the claim language its broadest reasonable interpretation. In particular, because claim 1 doesn't explicitly define what the detecting section is, only the portion of the sensor where the electrodes 44 and 46 are could be construed as being the gas detecting section because all the gas detection occurs at the electrodes. In other words, the portion of electrolyte 43 containing leads 45 and 47 need not be construed as being part of the gas detecting section because presumably no gas detection is occurring at the leads. Hence, even though Müller discloses supporting the heater leads 54 on the electrolyte, Müller only does so on a portion of the electrolyte away from the gas detecting section.

5. Alternatively, even if the examiner were to interpret all of electrolyte 43 as being part of the gas detecting section, Müller would still read on the amended claims because applicant only discloses that no part of the heating element is supported by the gas detecting section. In Müller, the heating element is just element 52. Elements 54 are just the leads delivering current to the heater 52. Because heater 52 is separated from the gas detecting section by porous layer 53, it is not supported by the gas detection section even if its leads are. The examiner notes that interpreting just element 52 as reading on the claimed "heating element" is entirely consistent with the applicant's claims. See claims 3 and 4 where the heater leads are claimed separately from the heating element.

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6. With respect to the structure of the detecting section, Müller discloses a solid electrolyte diaphragm 43 and at least a pair of electrodes (44, 46) disposed on each side of the diaphragm.

See fig. 5 and col. 5, ll. 41-47.

7. With respect to an air inlet space, free space 51 would read on the defined air inlet space.

8. Claims 1, 2, 5, 6, 13, 14, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/53302 (hereafter "WO '302"). WO '302 is being cited and relied on for the first time with this office action. Its use here was necessitated by the applicant's amendment to the claims. For the rejection of WO '302, the examiner will rely on the English language disclosure of Neumann et al (USP 6,666,962). All citations to text in WO '302 will refer to that text's location in Neumann.

9. WO '302 discloses a gas sensor comprising a gas detecting section (11, 15, 17) and a heater section (23, 25) secured in the gas sensor. The heater section including a heating element 23 and a support 25 that supports the heating element. WO '302 further discloses an opening section 21 and no part of the heating element is supported by the gas detection section. See fig. 1 and col. 2, ll. 19-57. With respect to the opening section reducing pressure generated between the heating element and the support, it is noted that element 25 is porous (col. 1, ll. 36 and 37), which means the opening would have the capability of reducing the pressure between elements 23 and 25 because any built up pressure can diffuse through element 25 into reference channel 21 of WO '302. Compare fig. 1 of the instant invention to fig. 1 of WO '302. Although DE '302 does not disclose utilizing opening 21 for the purpose of reducing pressure, it has been well settled that a patent cannot be granted for a new reason for doing what was already old in the art.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3, 4, 7, 8, 15, 16, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '302 in view of Müller.

12. With respect to the claims, WO '302 discloses the heating element 23, the support 25 and teaches that the opening section is provided such that a section of the heating element is exposed to an external atmosphere. See fig. 1. WO '302 did not explicitly recite the presence of a lead for the heater. However, common sense dictates that one must connect the heating element to a lead so as to deliver power to the heating element. The use of such a heating element lead 54 is shown by the teaching of Müller. See fig. 5. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Müller for the sensor of WO '302 so that power can be appropriately delivered to the heating element.

13. Claims 9-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Müller, WO '302, or WO '302 in view of Müller as set forth for claims 5, 6, 7, or 8 above, and in further view of Haecker et al (USP 4,283,441).

14. The references set forth all the limitations of the claims and disclosed the use of zirconia (col. 4, ll. 12-21), but did not explicitly recite the use of stabilized zirconia. Haecker teaches that the stabilized form of zirconia has a number of advantages including lowered sintering activity, increased ion conductivity, and temperature change stability. See col. 2, l. 52 through col. 3, l.

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18. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize stabilized zirconia as taught by Haecker for the sensor of Müller, WO '302, or WO '302 in view of Müller so as to benefit from the advantages highlighted above.

Response to Arguments

15. Applicant's arguments with respect to the claims and the teaching of Müller have been addressed above and will not be reiterated here. Furthermore, they arguments are also moot in view of the new ground(s) of rejection.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Friday from 8:00 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AU 1795
October 17, 2007


KAJ K. OLSEN
PRIMARY EXAMINER